ENVIRONMENTAL ASSESSMENT PANEL REVIEWING AIR TRANSPORTATION PROPOSALS IN THE TORONTO AREA

COMMISSION D'ÉVALUATION ENVIRONNEMENTALE CHARGÉE DE L'EXAMEN DES PROPOSITIONS DE TRANSPORT AÉRIEN POUR LA RÉGION DE TORONTO

REVIEW OF THE ENVIRONMENTAL IMPACT STATEMENT

CONSIDÉRATION DE L'ÉTUDE D'IMPACT ENVIRONNEMENTALE

Ottawa, August 27, 1991 -- The Environmental Assessment Panel reviewing air transportation proposals in the Toronto area has completed its review of the Environmental Impact Statement (EIS) submitted by Transport Canada in May 1991 and is releasing today a letter written to Transport Canada requesting additional information. In preparing this request the Panel has taken into consideration all the written submissions it received before the July 12 deadline from the general public, government agencies and technical experts.

The Panel considers that there is some information which it considers essential to obtain before deciding when public hearings will be held. The Panel is also of the opinion that some of the additional information, however, could be provided at the time of the public hearings. All of this information is necessary to support meaningful discussion in forthcoming hearings to better determine and understand the possible impacts of Transport Canada's proposal.

Ottawa, le 27 Août, 1991 -- La commission d'évaluation environnementale chargée de l'examen des propositions de transport aérien pour la région de Toronto a complété l'examen de l'Étude d'impact environnementale (EIE) préparée par Transport Canada en mai 1991 et rend public aujourd'hui la demande d'information additionnelle qu'elle a fait parvenir à Transport Canada. La commission a pris en considération tous les commentaires écrits reçus du public, des organismes gouvernementaux et des experts techniques pour préparer cette demande.

La commission considère qu'il y a de l'information qu'elle exige avant de décider quand les audiences publiques auront lieu. Cependant, la commission est d'avis que certaine information additionnelle pourrait être fournie juste à temps pour les audiences publiques. Toute cette information est nécessaire pour supporter les discussions, lors des audiences, qui serviront à mieux identifier et évaluer les impacts possibles des propositions de Transport Canada.

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Canada

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August 23, 1991

Ms. Huguette Labelle
Deputy Minister
Transport Canada
Transport Canada Bldg.
Place de Ville
330 Sparks Street
Ottawa, Ontario

Dear Ms. Labelle:

The Panel reviewing air transportation proposals in the Toronto area has completed its initial review, in the light of comments submitted up to July 12, 1991 from a variety of sources, of the Environmental Impact Statement (E.I.S.) on the Lester B. Pearson International Airport Airside Development Project. This initial review was undertaken to determine whether the E.I.S. responded to the guidelines document, issued by the Panel in August 1990, in a manner which would provide a satisfactory basis for the holding of public hearings.

The conclusions reached by the Panel in this initial review are set out in the enclosed statement. You will note that the Panel has found the E.I.S. deficient in one important area, namely the assessment of the social impact of the proposal, and has spelled out the amplification and clarification which it will require in this area in order to schedule public hearings. It has also identified a number of other matters on which it would wish to receive, either before or during the public hearings, information additional to what is provided in the E.I.S.

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The Panel looks forward to an early response from your Department, in order that it may proceed expeditiously with the scheduling and conduct of public hearings on the L.B.P.I.A. Airside Development Project.

Yours sincerely,

David Kirkwood

David Kirkwood
Chairman
Environmental Assessment Panel
Air Transportation Proposals in the Toronto Area

c.c. Victor Barbeau
Lloyd McComb

1.0 INTRODUCTION

The Environmental Assessment Review Panel reviewing air transportation proposals in the Toronto area has now had an opportunity to review the Environmental Impact Statement (EIS) and supporting studies submitted earlier this year by Transport Canada. In releasing the EIS to the public, the Panel invited comments on whether it constituted a response to the Guidelines document (issued by the Panel in August, 1990) which would provide an adequate basis for the holding of public hearings. In addition to the EIS itself, the Panel has also reviewed the considerable number of submissions received from a variety of sources, including those of the consultants engaged to assist the Panel, in which comments on the EIS are provided.

2.0 THE ENVIRONMENTAL IMPACT STATEMENT

The Panel recognizes that the preparation of the EIS by Transport Canada was a major task, and appreciates the great volume of information and the extensive analysis which the document provides. This material will be most helpful to the Panel, and no doubt to interested members of the public, in assessing the merits of Transport Canada's proposal to construct three additional runways at Pearson International Airport.

The Panel nonetheless has a responsibility to ensure that its eventual conclusions and recommendations will be based upon as complete and accurate an understanding as possible of the relevant facts and considerations. In this connection, and leaving aside matters of detail or interpretation that may not have any impact on its findings, the Panel has concluded that there is one area in which the EIS does not respond to the Guidelines document in a manner adequate to the Panel's requirements. This deficient area, namely the analysis of the anticipated social impact of the proposal, is in the Panel's view of such importance that it is not prepared to schedule public hearings on the EIS until it receives suitable clarification. The Panel's requirements in this area are outlined below.

There are in addition certain other matters, likewise identified below, on which the Panel requests further information. In some cases these relate to subjects on which the Panel seeks amplification of the present response to the Guidelines, while others concern subjects the significance of which the Panel has come to recognize more fully as a result of its consideration of the EIS and the comments on it which have been received. In these areas the Panel would hope to receive promptly the further information requested, and in any event to have it available during the public hearings; the scheduling of the latter, however, will not be conditional upon the timing of the proponent's response in these areas.

The Panel has observed a general lack of references/sources to support some of the conclusions in the EIS. These will be requested at the public hearings.

3.0 SOCIAL IMPACT ASSESSMENT

In this area the Panel finds the EIS deficient, not primarily through failing to provide information, but rather in failing to assemble, analyze and present satisfactorily information which is in fact to a considerable degree provided.

In the Panel's view, a social impact assessment should:

1) Document the impacts as experienced by the residents
2) Assess the severity and significance of the identified impacts
3) Determine how the proposed project will change the impacts currently being experienced (incremental impact)
4) Identify ways to mitigate the impacts

The impacts to be assessed relate to the effects on quality of life. This means that there should be information about how people actually live their lives, i.e. about lifestyle, and about how their behaviour patterns and activities may be affected by the proposal.

Much of the data required for such an assessment can in fact be found in the documentation provided, but they are scattered throughout the EIS and supporting studies in a rather haphazard way. Because of this, and the failure to approach the subject of social impact including lifestyle issues in the orderly, structured manner suggested above, the EIS does not provide a clear and coherent overview of the probable social impact of Transport Canada's proposal.

Social Impact Analysis

The EIS Guidelines stated that the SIA should address, but not be limited to 5 specific areas of subject matter.

The subject matter dealing with a review of municipal services, and an assessment of any electro-magnetic interference, are dealt with by other reports. The analysis of the effects of the proposed project on the level of passenger service was dropped by the proponent from the terms of reference of the SIA consultant. Given the concerns of travellers from the spoke communities and the project rationale which deals with level of service, this subject matter should be addressed in the SIA report.

The analysis of the impact on municipal, regional and provincial plans is partially included in the SIA report; specifically a review of the implications for municipal governments.

The most central aspect of the SIA report, namely the impact on the quality of life of the residents in the communities around the airport, is not addressed.

What the SIA report should do, at a minimum, is identify the ways in which residents are affected by noise, odour, air quality, ground access congestion, etc. This should be done by either gathering information directly from the residents, or from other secondary sources. Such information should then be analyzed in relation to what the changes would be resulting from the increases, if any, in noise, odour, dust, etc.

One should expect that the SIA study will tell us how people are affected in their day to day lives from airport activities, and how they can expect to be affected in the future.

For example, are people prevented from using their backyards; are shift workers disturbed when trying to sleep; do children have trouble concentrating when trying' to do their homework; are swimming pools not used due to air borne particulates; is wash hung out on a backyard line soiled; is use of parks and other public areas affected?

Given the available information from the literature review, the sources cited in the various economic background reports, and the data gathered by the survey that is referred to in the appendix, as well as the background information that must exist in Transport Canada's files [see reference on page ii, Appendix B] we should expect the SIA report to tell us exactly how residents feel they are affected, and through the SIA analysis, show us how many people are likely to be affected and how, and if possible where.

4.0 ADDITIONAL INFORMATION REQUESTED

4.1 Consideration of Alternatives

Section 5.1 of the Guidelines calls for a comparative examination of "the basic characteristics of the proposed project and all of the alternatives", and sets out a rather detailed illustrative list of such possible alternatives. It is specified that this examination should lead to the identification of the "reasonable alternatives", and that "the reasons for the rejection of any alternative must be clearly stated." Section 5.2 spells out a requirement for a detailed comparison of the Transport Canada Proposal and all of the "reasonable alternatives".

Possibly because of misunderstanding of the Panel's intent, the EIS examination of a number of the alternatives listed in the Guidelines for consideration is supported by rather limited data and analysis. As a result this section does not permit informed assessment of the grounds for their rejection from detailed consideration. The Panel wishes to have further information on rejected alternatives, including those ruled out on the ground that they are not relevant to the problem of capacity shortfall in the short to medium term even though they may be given consideration in longer term development planning.

The Panel's concerns in this area are spelled out in greater detail in Appendix A.

4.2 Aircraft Sound Exposure Levels

The EIS provides such a wealth of data on noise that the average reader will no doubt have difficulty in absorbing the details provided to obtain a clear picture of the LBPIA noise regime.

While the NEF metric provides the basis for the critical modelling of cumulative noise contours, a number of other metrics based on the Sound Exposure Level (SEL (in dBA), more often referred to as the Single Event Noise Level) such as Lmax, Leq, Ldn, L(1), etc. are introduced and used freely (together with NEF values) to describe noise "intrusions", monitoring site readings and modelling of future monitoring site readings. These metrics, measured in dBA, are proper and necessary to provide a complete picture of the LBPIA noise regime, augmenting that provided by the NEF contours. However, perhaps the most critical metric needed to enable layman and expert alike to get a coherent picture, namely the SEL metrics, is provided only in the form of overlays - which are difficult to use, but which can readily be modified to achieve the results sought by the Panel.

On page 38 of the "Workplan" (Dec. 1989) provided to Transport Canada by Mestre Greve Associates, these authors expected SEL analysis to be used more frequently in airport noise studies. Transport Canada has shown its intention to include thorough SEL analysis in the Vancouver International Airport (YVR) Environmental Impact Statement. The SEL analysis conducted for the YVR environmental assessment utilized the Integrated Noise Model (INM). This model provides for the plotting of SEL contours for individual aircraft. The proponent should be familiar with the method of analysis and presentation used in the YVR study. It is suggested that the proponent use this method at the public hearings to replace the overlays presented in the LBPIA EIS.

The SEL contours should present one set of contours (e.g. for DBA values of 95, 90, 85, and 80) for both directions of runway use, for a given aircraft. These SEL's should be provided for each runway (3 and 6 runway configurations) for each of a number of common Stage 2 and Stage 3 aircraft, that are, or will be, included in the present and future LBPIA operational scenarios. As well, the noisiest Stage 2 and Stage 3 aircraft should be included in this examination and a prospective timetable for the phasing out of Stage 2 aircraft provided. The proponent should be prepared to discuss the frequency of occurrence of the different SEL contours, and how this frequency will change when the use of Stage 2 aircraft is reduced.

The Panel requests clarification with respect to certain aspects of Report No. 13, entitled NEF Contour analysis of LBPIA Runway Expansion Options". The report provides 80 and 85 dB SEL's for several representative aircraft types. This information is provided in the EIS as well. Table 2.2.3 (i) of Report No. 13 uses the SEL's to calculate the ground area affected by the 85 SEL contour as a measure of the noise impact of various aircraft operations. However, the SEL's so provided in Table 2.2.3(i) compared to the SEL's found in the Insert at the end of Report No. 13 are of different shape. Table 2.2.3(i)

depicts SEL's with tails. The SEL's in the Insert do not possess this feature. In addition, using the rough scales provided, the length of the SEL's in Table 2.2.3(i) are approximately one half the length of the SEL's found in the Insert, in terms of ground coverage excluding the tail. The dramatic difference in size and shape of these conflicting SEL's should be explained in order to facilitate analysis of results. The proponent should also ensure that corrections are made where and if any conclusions are based on the use of incorrect SEL contours.

In addition, the Panel requests that, at the public hearings, the proponent be prepared to comment fully on each of the points raised by stakeholders who have questioned the noise analysis, and specifically those raised by Barman Swallow Associates, by S. Martin Taylor Phd., and by Aerocoustics (on behalf of MECAAN).

4.3 NEF contours

The EIS makes reference to the air traffic control safety requirement that, at some point relatively early in the climb-out, aircraft departing on independent parallel runways must turn outward so that a net angle of 15 degrees is attained between their relative tracks. Aircraft from either one or both of the runways may turn, as long as the required 15 degree divergent angle is attained.

However, the NEF's provided for the east-west parallel runways show no such divergence, even at their outer limits. This appears to be inconsistent with the ATC requirement to diverge. This matter is especially significant in light of the fact that the 1988 introduction of independent parallel operation with its attendant divergence on climb-out resulted in increases in noise over neighbourhoods that had not previously experienced noise problems.

Additional information is required to explain why the NEF's do not diverge; the Panel also asks whether the NEF referred to above are fully representative of the noise exposure that would be experienced by communities near their extremities.

In the case of the proposed 15-33 runway, the Panel understands that it will be used for landings only, and only when weather-mandated (there can of course be exceptions in the case of emergencies or other air safety considerations). This type of use will occur about 3 to 4 % of the time for durations averaging 5 to 6 hours - an extent of usage that has apparently no effect in the development of "planning day" NEF contours for the proposed runway. At the same time, it is a fact that 3 to 4 % of the time there will be a new aircraft noise intrusion over the neighbourhood affected. The proponent should therefore give particular attention to the proposed new 15-33 runway SEL's (in the landing mode) as required for all runways in 4.2 above.

To extend this specific noise analysis further, because of some lengthy durations (up to 16 hours) of weather-mandated use of the N-S runways, the proponent is requested to provide "4%" NEF contours for the proposed new 15-33 runway.

The relevance of this type of additional noise analysis will be apparent if one recalls that when the use of the runway is weather-mandated, there will be an aircraft landing approximately every 1.5 minutes.

4.4 Air Traffic Control

The EIS reports that capacity has been constrained at LBPIA for most of the past decade. One of the two reported reasons for this constraint has been a shortage of air traffic controllers, which can be traced to a 1984 decision to downsize Transport Canada.

The EIS also reports that airspace in the Toronto area is significantly crowded, especially given that two thirds of the flights in the Toronto control area are destined to other than Toronto-area airports.

With respect to the proposed project, the EIS reports that additional air traffic control positions will be required. However, the EIS does not report on the magnitude of the current shortfall, if any, of air traffic controllers, the number of controllers required to fully staff either the base case or the proposed project, or the lead time required to hire, train, certify and locate additional controllers at Toronto.

This additional information is required. It should be presented for the base case and for the 3 additional runways.

4.5 Cost benefit study

Additional information is required on the nature of the major underlying assumptions in the cost benefit study and of their impact on the results and conclusions of this study. For example, it is assumed in the EIS that any resident who has been highly annoyed by noise levels has already moved. This does not appear to be the case based on the information generated from this review.

4.6 Cost

The EIS reports that close to 40,000,000 passengers are forecast for LBPIA at the end of the planning horizon. This is clearly more than the number that can be served by the existing three terminal buildings. Similarly, the volume of air cargo is forecast to increase, perhaps requiring an increase in cargo-handling facilities.

The EIS also reports that several of the roads and highways serving LBPIA are at or near capacity, and that studies are either underway or have been completed, in conjunction

with provincial and municipal authorities, to examine alternative methods of increasing roadway and other ground access capacity to LBPIA to serve the additional vehicular traffic expected to and from the airport and other local and regional destinations. This is particularly significant in light of the fact that the proposed Pickering Airport was shelved because of provincial refusal to build ground access to the site.

The following additional information is required:

- the cost of building passenger terminal facilities to serve the additional passenger flows that would be served by the proposed project.
- the cost of building air cargo facilities (if required) to serve the additional air cargo that would be served by the proposed project.
- the cost attributable to LBPIA of adding capacity to road and transit facilities in the area of LBPIA.
- a list of the federal-provincial and provincial-municipal studies available of future ground access requirements in the LBPIA area.

4.7 Aircraft movement demand

The input data, most particularly with respect to annual aircraft movements, requires additional information or explanation. Figure 2.3-2 shows totals of approximately 234,000 movements in 1983, and approximately 348,000 movements in 1989. This 1989 total is repeated in the EIS text.

Demand estimates in the EIS use the 1989 total as a key starting point, and also incorporate the significant annual rate of growth inherent in moving from 234,000 movements to 348,000 movements in six years. The 1989 annual movement total is thus a critical number in estimating both the growth rate and the absolute value of future demand for aircraft movements.

Figure 2.3-2 reports a "Total" value of 234,000 movements for 1983. This total can be arrived at by summing the number of movements for that year in each of the five categories reported on the graph.

Figure 2.3-2 also reports a "Total" value of 348,000 movements for 1989. However, the sum of the movements reported for each category for 1989 totals only 262,000 movements. There is no explanation offered in the EIS to account for the unexplained 86,000 movements (33% of those reported).

Additional information is required to explain this 33%.

4.8 Runway Utilization

The EIS reports that several combinations of runways have historically been used at LBPIA. Among these is the so-called "swing" operation, in which the north-south runway is used for departures while one or both of the east-west runways is used for arrivals and possibly for some departures. Data presented in the EIS show that the airport hourly capacity of a swing operation is close to that of a full independent parallel operation, particularly in visual weather conditions.

In projecting how the proposed project 6-runway layout might be used, the underlying assumption appears to have been made that the swing operation would never be used. This is reflected, among other places, in the cost/benefit study. However, one explanation for the significant difference in NEF's for the proposed project between the easterly and the westerly of the two north-south parallels is that the easterly parallel would continue to be used for swing operations.

The EIS (Section 6.2) specifically requests information on runway utilization patterns expected under the proposed project. Additional information is required in this regard.

4.9 "Number" of passengers

Report 1 provides historical information concerning origin destination passengers and enplaned/deplaned passengers. We would like similar information concerning transiting passengers.

4.10 Relationship between annoyance and noise

The EIS and Report 26 use the so-called "Schultz curves" for assessing the dose-response relationship between noise and annoyance, without reference to other recent publications dealing with the same dose-response concept.

In the opinion of Taylor (Consultant's report July 12 1991) and Bly (Health and Welfare Canada, letter July 12, 1991) the treatment in Report 26 is incomplete. These reviewers refer to other studies, which would give a more conservative measure of general adverse reaction to noise in the population. In particular, Taylor and Bly refer to Hall et al. 1981, who describe community-noise studies in the vicinity of LBPIA.

In addition to the specific comment above, the material on health related effects of noise is lacking in references to and discussion of the literature, especially the more recent literature.

The proponent should provide a discussion of alternatives to the Schultz curve, to justify the choice of the particular dose-response relationship that was used, and more generally to demonstrate familiarity with the recent literature on noise and community health. The

submissions by Taylor, Bly and Wiesenthal, all from July 1991, provide appropriate references.

4.11 Effects of noise on schools

There are some serious inconsistencies among the data in Report 26 and the EIS Summary document, concerning noise levels at Our Lady of the Airways Separate School in Mississauga. Specifically for the school in question, Table 6.3.9 indicates a reduction in NEF by the year 2001 for the three runway scenario and a reduction by 1996 for the six runway scenario. The summary document, (p. 29, column 1, section 4, para 3) states "Our Lady of the Airways Separate School in Mississauga would experience no change in noise levels until the year 2011 when levels would drop slightly."

Furthermore there is a statement in the summary that (p.29) "Noise levels at our Lady of the Airways are not considered high enough at this time, or in the future, to cause any health or educational deficiencies." Yet in the full report, (section 2.10.1.1, p. 2-179) the second conclusion of the 1990 noise survey of school states that, "North facing classrooms at Our Lady of the Airways had sound levels on overflights which would create speech interference and likely disrupt teaching activities."

Also in the context of the effects of noise on schools, the EIS does not deal with the request for information (Guidelines 8.8.3) on how extra-curricular activities would be affected by noise.

The summary document should be revised to report accurately on the data and conclusions from the main report. The proponent should provide information on how extra-curricular activities would be affected by noise.

4.12 Air quality monitoring

The EIS states that a fixed base air monitoring station will be installed at LBPIA. In the Environmental Management Plan, it is stated that the feasibility of installing one or more permanent air quality monitoring stations "will be investigated".

The commitment to install one or more fixed air quality monitors should be clarified, and the proposed site(s) should be identified.

4.13 Air quality modelling

The relative improvement in air quality has as a major component the reduction of emissions resulting from reduced queuing time. However, neither report 21 nor the EIS document describe how information on queuing times was derived and what queuing times would occur for different runway configurations for current or future scenarios.

Furthermore, in the modelling report it was suggested several times that the EDMS might overestimate air concentrations close to the queuing area. Environment Ontario points out (Lammers 1991) that "If this is true then the relative improvement brought about by the new runways might be overstated."

The EDMS model calculates emissions resulting from taxiing to and from gates, but does not use these emissions in dispersion calculations. Such omission does not seem reasonable if, as shown in Table 19 of Report 21, 40 - 50% of CO and VOC emissions are attributable to taxiing.

In future scenarios, the emissions from taxiing can be even more important, 75% - 90% for CO and VOCs. Both of the above points have been examined and elaborated upon by Environment Ontario (Lammers 1991).

The proponent should provide a reference or references to a detailed description of how the information on queuing times was obtained or derived as well as a list (ideally in table form) of all the factors that were needed to obtain queuing times for "worst", "average" and "best" model runs.

The possibility of inputting effective queue length or area into the model should be investigated.

The impact of emissions due to taxiing should be included in the modelling results. If this is not done, justification for their exclusion should be made. The statements made in this context by Environment Ontario (Lammers, July 1991) should be addressed.

5.0 MITIGATION MEASURES

The EIS acknowledges that in a number of areas the implementation of the proposal will, or may, have adverse consequences. For many of these areas, which appear in the list set out in Table 8.3, the proposal includes specific measures to mitigate these impacts, and for some other areas the proposal has been structured (e.g. in the selection and location of the proposed new runways) as to mitigate the adverse impacts to a greater or lesser degree. The EIS concludes that the residual adverse impacts, not eliminated in these ways, will be sufficiently small as not to constitute a significant problem.

It is however possible, and a number of the submissions received by the Panel assert, that the adverse impacts of the proposal will be greater and the effectiveness of mitigation will be less than is estimated in the EIS. Transport Canada may therefore wish to examine whether there are further mitigation measures which might be adopted should concerns on this point prove to be well founded, in order to be able to deal with the questions on the subject at the public hearings.

6.0 COMPENSATION

The Guidelines document, while not actually using the term compensation, states that "for any residual effects of the proposed project that cannot be mitigated, the cost of measures that could be provided to those adversely impacted by it, should be estimated, including cost for: noise annoyance; property depreciation; relocation; and, sound insulation."

The EIS contains a calculation of net costs related to accommodation which would be brought inside the NEF 30 noise contour as a result of the proposal, totalling $ 5.1 Million. This purports to estimate the economic cost to owners of such accommodation attributable to noise annoyance, property depreciation and relocation; it does not address the question of sound insulation. Leaving aside for consideration at the public hearing the validity or otherwise of the analysis leading to this figure, it would be helpful to the Panel to have some indication of a mechanism by which persons suffering such losses might be compensated.

APPENDIX A

Section 5.1 of the EIS Guidelines requires "... an examination of the basic characteristics of the proposed project and all of the alternatives... ". The nature of the examination is to include, for each, "... a relative comparison of environmental, social, and economic impacts." Based on this examination, the EIS is to "... identify the reasonable alternatives that have the potential to satisfy the air traffic congestion problems in the Toronto area." These reasonable alternatives would then be subject to a more detailed review in accordance with Section 5.2 of the EIS Guidelines.

The meaning and intention of this requirement are clear: Transport Canada was to identify a range of alternatives to the proposed project and, for each such identified alternative, as well as for the proposed project and the "no action" alternative, define its basic characteristics in order to conduct a preliminary comparative screening. This preliminary screening was to be based on the environmental, social and economic characteristics of each. The procedure is designed to ensure that an alternative that might be quite different from the proposed project, and yet might still satisfy Toronto air traffic congestion problems, would pass through the first screening for more detailed consideration if its overall impact was comparable to or better than the proposed project.

By following this procedure, Transport Canada would be able to significantly reduce the number of alternatives to be investigated in extensive detail, thereby significantly reducing the required workload and study duration, without overlooking or prematurely eliminating any alternative that, on first blush, might not warrant further consideration. The two-stage procedure is designed to yield a review that is complete without being overly detailed, time-consumptive or costly.

To further direct and simplify Transport Canada's analysis, the EIS Guidelines identified seven alternatives to be included in those to be considered at the preliminary screening. These were, in paraphrased language:

- no action;
- productivity improvements using the existing three runways;
- traffic diversion with concomitant supporting facilities;
- modal shifts;
- addition of one runway only;

- multi-airport systems; and,
- replacement airport.

The language used in the EIS Guidelines is sufficiently general to allow Transport Canada flexibility in defining the alternative(s) in each of the seven categories, but is specific in that an alternative from each of the categories must be considered. Furthermore, the consideration must include the definition of each alternative's basic characteristics and a relative comparison of each based on environmental, social and economic impacts.

It is possible, by way of further explanation, to provide examples of the types of alternatives that could be examined in each category to satisfy the requirements of the Eis Guidelines:

- no action

  This category is self-explanatory, in that it represents the continued operation of LBPIA in its current configuration and with its current ATC procedures and facilities.

- productivity improvements using the existing three runways

  Transport Canada has responded to this category.

- traffic diversion with concomitant supporting facilities

  This category could include strategies such as the diversion of some traffic, such as regional services to an airport such a Downsview, together with the provision of bus services to link Downsview and Pearson for connecting passengers.

- modal shifts

  This category could include an alternative such as the current proposal to increase reliance on high-speed rail in the Toronto-Montreal corridor. The EIS does include a discussion, but not an examination, of this alternative.

- addition of one runway only

  This category is self-explanatory, and has been partially dealt with in the EIS in the more detailed analysis. The EIS does not, however, include a full comparison of alternatives in this category.

- multi-airport systems

  The EIS dismisses this category as being outside the scope of this phase of study.

- replacement airport

  The EIS also dismisses this category as being outside the scope of this phase of study.

The EIS Guidelines do not preclude the combination of strategies from more than one category, such as the provision of one additional runway at LBPIA and the use of other existing airports: it would be possible to identify alternatives of this nature that should have been considered in the EIS.

Section 5.2 of the EIS Guidelines requires a more detailed analysis of the "reasonable" alternatives that survive the preliminary screening of Section 5.1. Because the response to Section 5.1 is deficient, Section 5.2 is also potentially deficient. If the response to Section 5.1 had included the required information, then it is entirely conceivable that Section 5.2 would have had more and different options to consider than merely the siting of one or more new runways on the LBPIA property. The current response to Section 5.2 of the EIS Guidelines is limited to the development of an engineering and operational definition of the proposed project.